

an information device on a movable item, ascertaining the location of the information device and controlling a resource as a function of the location of the information device.

Beaulieu fails to teach or suggest the step of controlling a resource as a function of the location of an information device. In this regard, Beaulieu teaches placing a sensor on a semiconductor wafer carrier that is equipped to sense various wafer and environmental characteristics during a manufacturing process. In addition, Beaulieu teaches that the sensor can be equipped to transmit the sensed information and, in some cases, a location beacon signal (see end of paragraph 34) to a receiver in a facility so that one or more processors external to the sensor can use the information to track the manufacturing process. In this regard, a statistical process control system (SPC) may be programmed to analyze wafer-based parametrics in order to determine if a wafer lot under manufacture is meeting specification and the results of the SPC analysis may be provided to a production control system 320 (see end of paragraph 40). At the beginning of paragraph 40 Beaulieu teaches that the production control system monitors the identities of wafer carriers and tracks wafer carrier location and times or periods at different locations.

Despite the label “production control system” that Beaulieu chose in his specification, tracking location and times at locations is not the same as controlling a resource as a function of the location of an information device. Tracking location is what it is and nothing more and to read more into Beaulieu’s specification is simply wrong.

In addition, claim 1 requires control of a resource as a function of the current location of an information device, not based on a statistical analysis of past locations and times at locations of sensors as taught in Beaulieu. For instance, while the present invention may control a drilling machine to form a hole in a block of metal when the block is positioned at a specific location with respect to the drill bit, Beaulieu fails to teach a system that could perform the same function. Instead, Beaulieu teaches a system that performs an after the fact statistical analysis of a manufacturing process

(as evidenced by the statistical process control (SPC) system) which does not control resource location as a function of the instantaneous location of an information device as required by claim 1.

With respect to claim 2, claim 2 requires that the moveable item to which the information device is attached be the product to which a process is being performed. Beaulieu teaches that a sensor is attached to a wafer carrier, not to the wafer (i.e., the product being processed) itself. Consistent with this understanding, Beaulieu teaches that the sensors can be cleared and reused (see end of paragraph 48).

With respect to claim 4, claim 4 requires that a processor linked to the information device determine the location of the information device based on information obtained from the environment in which the information device is located. Beaulieu teaches systems where sensor location is determined by a processor or device that is external to the sensor which is completely different than a system in which a processor that is linked to the sensor for determining location. In addition, claim 7 requires a transmitter linked to the processor that is linked to the information device for transmitting the location information to the controller. Transmitting a location beacon that can be used to determine location and transmitting a location signal are completely different.

With respect to claim 8, claim 8 requires commencing a manufacturing activity on a work product when an information device associated with the work product is at a specific location with respect to the resource. Claim 24 includes similar limitations. Again Beaulieu teaches a statistical system at best and does not teach altering control as a function of specific location of an information device.

With respect to claim 9, claim 9 also requires determining the location of the first resource that is to performing a manufacturing process on a work product. Each of claims 15 and 25 includes a similar limitation. Beaulieu clearly fails to teach anything akin to determining both the location of a work product and the location of a first resource that is to perform a manufacturing process on the work product. To the extent

that the Examiner maintains this objection, Applicant requests that the Examiner point out any portion of Beaulieu that even remotely suggests this claim 9 limitation.

With respect to claim 10, claim 10 requires positioning stationary labels within a facility environment and using the information device to sense the locations within the environment when the device is proximate the labels. Claim 32 includes similar limitations. While Beaulieu teaches distributing bar code readers along a track that can determine location of a sensor as the sensor moves along the track, this is the exact opposite of placing labels along the track that can be read by the information device.

With respect to claim 11, claim 11 requires that when an information device is between two stationary location labels, that the information device ascertains location by estimating the location based on the most current location. Claim 33 includes similar limitations. Beaulieu fails to teach or suggest any type of location estimation based on most recent known location. Similarly, claim 12 requires that the estimate also be based on the time since the information device was at a known location and Beaulieu fails to teach this limitation. In addition, claim 13 requires that the estimate also be based on the velocity of the information device, a limitation that is not taught or suggested by Beaulieu. Claim 34 includes similar limitations. Moreover, claim 38 includes estimating as a function of product acceleration which is not suggested by Beaulieu.

With respect to claim 16, claim 16 requires placement of information devices at the same locations on each of a plurality of work products. Beaulieu fails to teach this limitation and because the semiconductor manufacturing industry is so detail specific, likely would rely on other systems for precisely aligning manufacturing tools with wafers to perform manufacturing operations.

With respect to claim 17, claim 17 requires ascertaining the orientation of the work product in addition to determining the location and controlling the resource as a function of the orientation of the work product. Beaulieu fails to even remotely suggest ascertaining wafer carrier orientation and appears to indicate that the orientation is

always constant and known (see Figs. 1A and 1B).

Claim 18 requires placing a second information device on the work product and using the first and second devices to ascertain orientation. Claim 20 includes a similar limitation. Claim 19 requires placing a third information device on a work product. Beaulieu clearly fails to teach or suggest any of these limitations.

Claim 26 requires the step of storing process data on the information device that can be used to determine a process to be performed by the first resource on the associated work product. Beaulieu fails to teach or suggest providing process information on the sensor and requests that the Examiner please point out the teaching in Beaulieu that even remotely suggests this limitation if this rejection is sustained.

Claim 29 requires the steps of indicating at least one component to be added to a work product in the process information stored in the information device and confirming that a specific component is an instance of the component to be added and then performing the process to add the component when the component is an instance. Beaulieu fails to teach this limitation.

With respect to independent claim 49, claim 49 requires providing environment information with an environment from which information device location can be ascertained, providing information devices on each of several work products, obtaining environment information using the information devices and using the environment information to determine the locations of the information devices.

Beaulieu fails to teach or suggest a sensor capable of obtaining environment information from which sensor location can be determined. In this regard, Beaulieu only teaches that a location beacon may be generated by the sensor or that bar code readers could be positioned along a track for sensing the location of a carrier as the carrier passes. In other words, Beaulieu's sensor does not obtain any information from which location can be determined.

Each of claims 50 through 54 further limit claim 49 and none of the claimed limitations is taught by Beaulieu. To this end, claim 50 requires that a receiver be

included on the product and that information be transmitted to the receiver for determining location. Claim 51 requires that a processor linked to the receiver (and hence on the product) be programmed to determine device location from the received signals. Claim 52 requires that a triangulation or statistical method be used to determine device location. Here Applicant notes that transmitting a beacon does not automatically mean that triangulation or a statistical method are being used and instead may mean that when Beaulieu's sensor is proximate a receiver along a track, the receiver will sense the sensor's beacon and assume that the carrier is proximate. Claim 53 requires placement of position labels within a facility that are sensed by the information device. Claim 50 requires providing a transmitter that is linked to the information device for transmitting the environmental information from the device to another processor separate from the device so that location can be determined by the separate processor. Beaulieu fails to teach or suggest any of these limitations.


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AMENDMENT  
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Applicant has introduced no new matter in making the above remarks. In view of the above remarks, Applicant believes claims 1-41 and 49-54 of the present application recite patentable subject matter and allowance of the same is requested. No fee in addition to the fees already authorized in this and accompanying documentation is believed to be required to enter this amendment, however, if an additional fee is required, please charge Deposit Account No. 17-0055 in the amount of the fee.

Respectfully submitted,

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